
Agency Name

Smart Card
Cardstock Acceptance and Sustainment
Process
Version 1.0

Agency Symbol/Seal

June 15, 2003

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EXECUTIVE SUMMARY

This document defines the smart card process requirements and timeline to a GSA Prime and Card manufacturer who plans to produce the Smart Card for the Agency Smart Card program. This document does not supercede the task order, statement of work, pre-issuance or card specifications documents but is to be used as an aid in implementing the requirements addressed in those documents.

The Agency provides this process document to all card manufacturers. The information in this document is subject to change although to the degree possible, the Agency intends to standardize the process so that all card vendors can reference a common set of criteria for the smart card manufacturing process. It is the responsibility of the Agency to meet the overarching program objective of 'any card used anywhere in the Agency' regardless of card manufacturer. To achieve this goal, the card manufacturer must work closely with the Agency to ensure the card provided will integrate flawlessly with the current issuance process, software, and smart card inventory logistics system or logistics personnel.

The Agency has made every attempt to ensure accuracy and completeness of this document. We encourage all readers to provide us with suggestions for overall improvement. Comments or suggestions can be sent to [e-mail](#) address *Please list "Smart Card Acceptance and Sustainment Process" in the subject line.*

1. ROLES AND RESPONSIBILITIES

1.1. Agency

During the course of a card order, GSA Primes and Card Manufacturer's will work with a combination of Agency staff members:

- POC Name (Agency Smart Card COTR) –is responsible for overseeing all contractual and logistical issues associated with integrating and implementing cardstock into the smart card Issuance Infrastructure
- POC Name (Agency Technical Program Agent) –is responsible for all technical and integration issues that arise with integrating and implementing cardstock into the smart card Issuance Infrastructure
- POC Name (Agency Cardstock Delivery Operations Manager) –is responsible for maintaining the logistics of cardstock availability, monitoring sites requests for additional cardstock, forecasting cardstock and consumables requirements, and ensuring that cardstock contamination issues are isolated and addressed.
- POC Name (Agency Cardstock Integration and Implementation Action Officer-Ctr) –is responsible for supporting Agency smart card COTR, Technical Program Agent, and Cardstock Delivery Operations Manager in regards to cardstock integration and implementation. Addition responsibilities include maintaining the pre-issuance specification and associated cardstock acceptance documentation.

1.2. GSA Prime

The GSA Prime is the entity contractual responsible for fulfilling the task order with Agency. The GSA Primes responsibilities include (but are not limited to) the following:

- Maintain documentation of all communications between Agency and GSA Prime. It is preferred (but not required) that the Agency weekly meetings be documented using the Agency meeting form.
- Once cardstock has passed all testing (FIPS Certification and Compliance, ISO and Card Specifications, and *Integration and Operational environment*) provide a *card delivery* schedule. This schedule will note the minimum date a card manufacturer requires a Batch Order from Agency and when the cardstock will be delivered to Agency and/or the Card Manufacturer's vault.
- Ensuring the cardstock is delivered IAW with the task order. This includes (but is not limited to) cardstock that is contamination-free, properly packaged, and delivered on-time.

1.3. Card Manufacturer

The Card Manufacturer responsibilities include (but are not limited to) the following:

- ISO and Card Specifications Compliance – this includes consistently providing a product that meets or exceeds the criteria that the card was officially accepted under.
- Delivery Schedule Compliance – this includes product availability on the dates agreed upon in the cardstock delivery schedule (see Section 3). If there is a schedule delay, the card manufacturer is responsible for informing the GSA Prime and Agency.
- Pre-Issuance Specifications and Cardstock Sustainment Process compliance – this includes all the document technical and operational requirements noted in current (and revised) editions of these documents.

2. CARDSTOCK ACCEPTANCE

Prior to mass ordering/production of cardstock, Agency ensures approved cardstock vendors has met the required Agency testing of FIPS Certification and Compliance, ISO and Card Specification, and Integration and Operational environment testing. These tests are further explained in the following subsections.

2.1. FIPS Certification and Compliance testing

Prior to beginning the pre-qualification testing, the card manufacturer's cardstock must be compliant (i.e. validated) with the FIPS Certification level stated in the cards specifications document. During this process the card manufacturer will work with a Agency vendor to load the proper applets on the card and the NIST independent lab to verify if the product meets the NIST requirements for FIPS certification.

The FIPS Certification/Analysis testing conducted by the Agency Vendor includes (but is not limited to) the following:

- Card Identification (based on Spec from Card Vendor)
- Determine card ATR
- Determine Communication Protocol
- Maximum communication speed
- Electrically Erasable Programmable Read-Only Memory (EEPROM) size
- Applet Packages
- Applet Instantiation
- Applet Removal
- Security Domain Instantiation
- Personalization
- Key Pair Generation
- Testing all of the Application Protocol Data Unit (APDU) for the set of applets – General Container (GC), Identity (ID), Public Key Infrastructure (PKI)
- Validating that applet command execution is compliant to specifications (test with valid and invalid parameters)
- Unitary Test – performed for each access right per applet instance (examples: key pair generation, certificate injection, certificate verification, read/write to GC)

2.2. ISO and Card Specification Compliance testing

The Agency contracts an independent vendor to perform ISO, Card Specification, and other tests (some of the ANSI INCITS 322 Card Durability Tests) on the “production-quality” cardstock provided by the card manufactures.

Vendors should refer to the latest version of the Agency Smart Card Cardstock Specification for the complete list of requirements for the smart card while noting that additional tests may be performed as needed to help ensure the Government receives quality product. *For example, if printing tests show the presence of a surface chemical additional chemical tests may be performed to diagnose the chemical on the card surface so that the problem may be resolved.*

Card Specification tests include (but are not limited to): Printability Tests, Location of Magnetic Stripe Tests, and Surface Profile of Contacts Tests

These test are then followed by the complete ISO tests called for by the Agency Smart Card Cardstock specification which includes the following ISO tests:

ISO/IEC 7810	ISO/IEC 7816-1 (continued)
Dimensions (height and width), Section 5.1.1	Surface Profile of Contacts, Section 4.2.3
Dimensions (thickness), Section 5.1.2	Mechanical Strength, Section 4.2.4
Card Corners, Section 5.1.3	Electrical Resistance, 4.2.5
Bending Stiffness, Section 8.1.1	Electromagnetic Interference, Section 4.2.6
Flammability, Section 8.1.2	Static Electricity, Section 4.2.7
Resistance to Chemicals, Section 8.1.4	Bending Properties, Section 4.2.9
Card Dimensional Stability, Section 8.1.5	Torsion Properties, Section 4.2.10
Delamination, Section 8.1.8	
Blocking, Section 8.1.9	ISO/IEC 7811-6
Opacity, Section 8.1.10	Magnetic Characteristics, Table 1
Warpage, Section 8.1.11	Location of Magnetic Stripe, Figure 1
	Surface Profile, Section 6.1.1
ISO/IEC 7816-1	Surface Roughness, 6.2
Ultraviolet light, Section 4.2.1	Wear from Read/Write Head, Section 6.4
X-rays, Section 4.2.2	

2.3. Integration and Operational environment testing

After receiving notification from the Agency that a new card will be integrated into the system, the Agency Integration and Operations team begins reviewing their

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system to determine what impact a new card will have on the infrastructure. The team then begins conducting limited print testing to verify that the card will successfully implement in the production environment and integrates updated software into the backend issuance system to begin Quality Assurance, Card Integration, and smart card Regression testing utilizing the cardstock provided by the card manufacturer. These tests include (but are not limited to):

- Verification that the key ceremony* was successful
- Verification that Card Manufacturer's BDD and SDD XML files are successfully imported into the Agency's inventory logistics system or with the identified logistics personnel and Card Repository System (CRS)
- Verification that card successfully encodes (to include all certificates)
- Verification that all test conducted under card integration testing still function with all existing card types in the production environment
- Verification that production-quality image is visible on card

*The Agency conducts a minimum of two key ceremonies for each card procured. The first is the test key ceremony. The card manufacturer provides the "test" key to the Agency approved integration vendor either via three e-mails to differing personnel or via 3 secure carriers. After successfully encoding the engineering cards with the "test key", the Card Manufacturer will ship the production key via 3 secure carriers to the Agency Security agents, who will conduct the production key ceremony.

2.4. Product requirements for Cardstock acceptance testing

As a general rule the Agency requires the following cardstock (and quantities) for the following tests:

FIPS Certification and Compliance testing

- Chip cardstock (varies 25-100)

ISO and Card Specification Compliance testing

- Chip Cardstock with "test" keys on a production cardbody (100-300 cards)

Integration and Operational environment testing

- Chip Cardstock with "test" keys on a production cardbody (300-500 cards)
- Chip Cardstock with "app dev" keys on a engineering or production cardbody (50-100 cards)
- Chip Cardstock with "prod" keys on a engineering or production cardbody (5-10 cards)

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Please note: these quantities are subject to change, but advanced notification will be provided.

3. CARDSTOCK STORAGE AND DELIVERY

3.1. Cardstock delivery schedule

Once a card has been approved by the Agency, GSA Prime, and the card vendor determine a delivery schedule that includes the date the Agency is required to provide batch orders, the quantity of cards within each batch order, and the date the Card Manufacturer will deliver the cardstock to the vault. An example delivery schedule is depicted below.

*Exhibit 2-1
Order Submission and Vault Storage Schedule*

Order #	Date DMDC Cardstock Order (BOD) due to GSA Prime/CM	Cardstock Quantity	GSA Prime/CM Cardstock Delivery Date to DMDC (or CM Vault)
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY
BO #	DD/MM/YYYY	10-100K	DD/MM/YYYY

Once both parties agree upon the delivery schedule, Agency provides a full acceptance letter that documents the cardstock successfully passing DoD testing requirements and the approved delivery schedule. An example Agency full acceptance letter is available in Appendix B.

3.2. Batch and Shipping Order Descriptor XML files

For an in-depth description, please reference Chapter 6 Section 3 and Appendices B and C in the Pre-Issuance Specification.

As outlined in the Pre-Issuance Specifications (Chapter 6.3) Agency will communicate cardstock orders via Batch Order Descriptor (BOD) XML files. These files will be sent from an approved Agency representative to the e-mail address provided by the card manufacturer. Based on past experience, it is advisable that the card manufacturer develop a generic e-mail address that distributes the BOD to the

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appropriate personnel. The BOD may be sent on the date agreed upon in the delivery schedule or several days/weeks ahead of schedule.

Once the cardstock has been created, the card manufacturer notifies the appropriated Agency personnel that the cardstock is available in the vault and then submits the Batch Deliver Descriptor (BDD) XML to the appropriate Agency personnel via the e-mail address. The Agency imports the BDD into the databases and then chooses to either allow the cardstock to remain in the vault (for a future order) or to immediately place orders against the cardstock in the vault via the Shipping Order Descriptor (SOD) XML file.

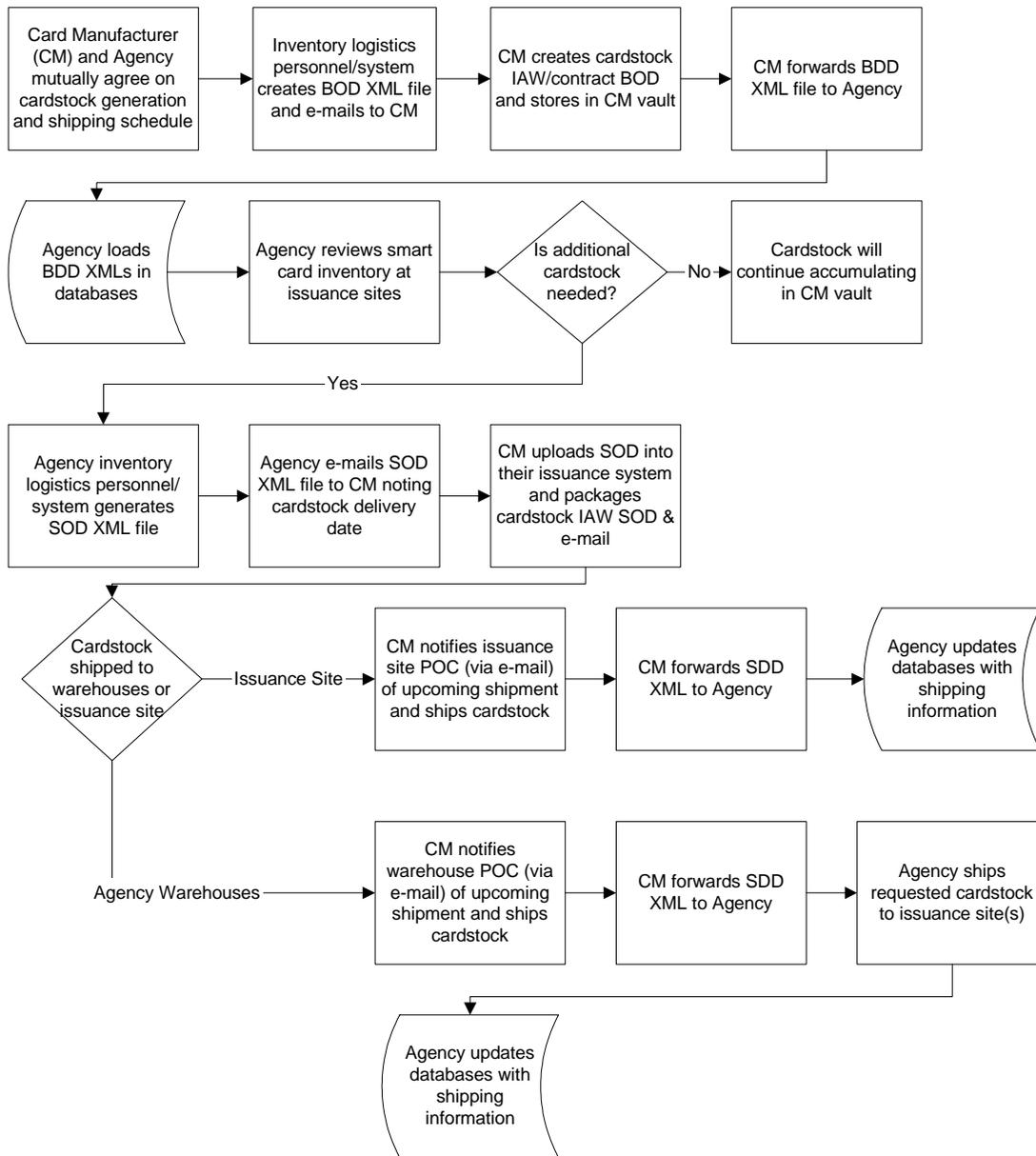
SODs may be issued by Agency several times a month, several times a week, or several times a day depending on cardstock requirements and locations the cardstock must be shipped to. Each SOD is for a specific location and against a specific batch and it is up to the card manufacturer to determine which stack(s) from the Batch will be used to fulfill the SOD. The e-mail containing the SOD will also specify the method for shipping the cardstock and the date the cardstock needs to be either shipped from the vault OR the date the cardstock must be received at the issuance site. If the card manufacturer is unable to meet the shipment date, Agency is immediately notified to determine if a workaround is available. Once the cardstock is shipped, the card manufacturer immediately e-mails the Shipping Delivery Descriptor (SDD) XML file to Agency via the e-mail address. The individual listed in the XML file is also notified via e-mail that the cardstock is being shipped to them. Once Agency receives the SDD it is uploaded to their issuance system and the issuance sites are able to begin issuing the cardstock.

As a recap:

- Batch Order Descriptors (BODs) will be sent from Agency to GSA Primes/Card Manufacturer's in accordance with the Delivery Schedule timeline.
- Shipping Order Descriptors (SODs) will be sent from Agency to GSA Primes/Card Manufacturer's at a minimum three days prior to expected shipment date.
- Batch Delivery Descriptors (BDDs) must be provided to Agency within 24 hours of the cardstock being stored within the Card Manufacturer's Vault. Failure to provide timely BDDs can lead to Agency issuance delays and the associated costs may be forwarded to the GSA Prime
- Shipping Delivery Descriptors (SDD) must be provided to Agency within 24 hours of the cardstock leaving the Card Manufacturer's Vault. Failure to provide timely BDDs can lead to Agency issuance delays and the associated costs may be forwarded to the GSA Prime

This entire process is documented below in Exhibit 2-2.

Exhibit 2-2
Overview of Cardstock Order and Shipment Process



3.3. Smart Card Product Identifiers

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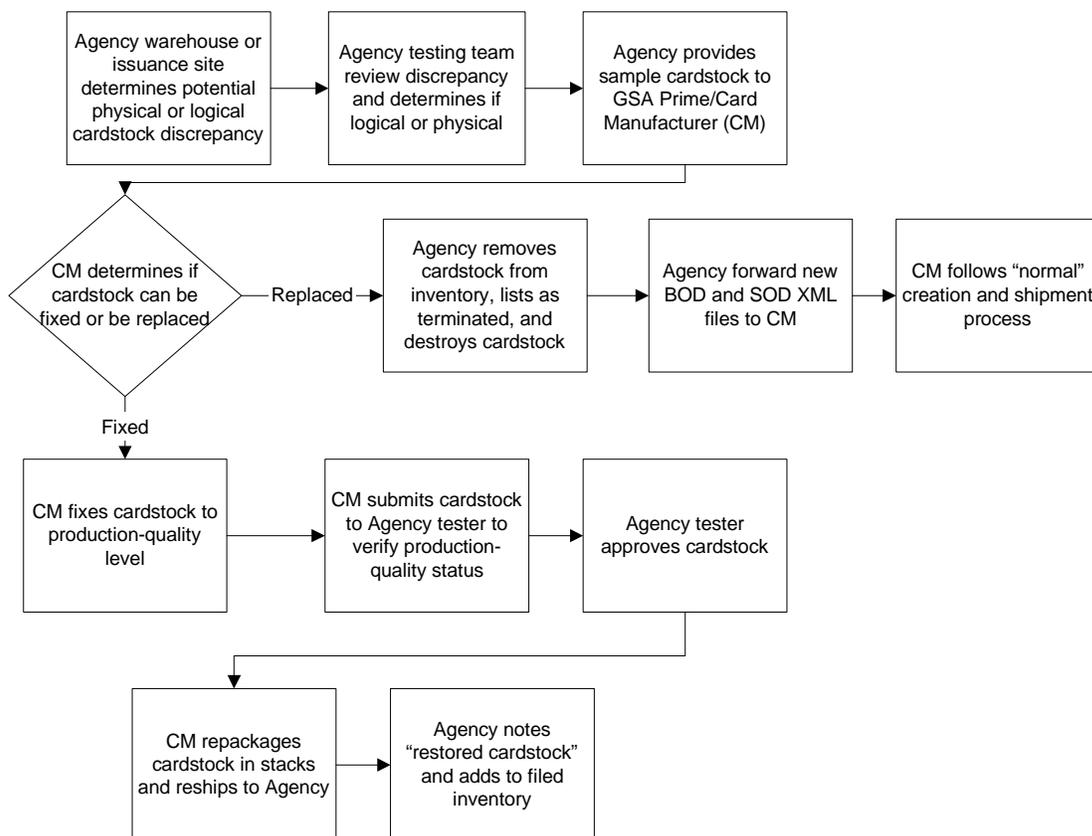
Card Manufacturer 64k v2 1111-1111-1111-1111-0000 00000001

4. RETURNED CARDSTOCK

There have been a few occasions where multiple batches of cardstock has been returned to Agency (either from the Agency warehouses or the issuance sites) due to either physical (magnetic stripe placement, poor printing, surface contaminants) or logical discrepancies (malfunctioning chips). In these instances if the cardstock return is determined to be due to the card manufacturer, Agency has requested that the GSA Prime/Card Manufacturer restore the cardstock to the approved production quality standard and/or provided replacement cardstock.

This process is still being revised but the current process has been as follows:

Exhibit 4-1
Returned Cardstock Process



APPENDIX A: GLOSSARY

APDU	Application Protocol Data Unit
BDD	Batch Delivery Descriptor
BOD	Batch Order Descriptor
CRS	Card Repository System
GC	General Container
IAW	In Accordance With
ID	Identity
PKI	Public Key Infrastructure
SDD	Shipping Delivery Descriptor
SOD	Shipping Order Descriptor

APPENDIX B: SAMPLE AGENCY ACCEPTANCE LETTER



DEPARTMENT OF DEFENSE
 HUMAN RESOURCES ACTIVITY
 DEFENSE MANPOWER DATA CENTER
 1600 WILSON BLVD., SUITE 400
 ARLINGTON, VIRGINIA 22209-2393

TO: <GSA Prime –Prime POC>
CC: <Card Manufacturer – CM POC>
FROM: Smart Card Programs and Operations – Deborah Gallagher (COR)
DATE: DD/MM/YYYY
SUBJECT: Defense Manpower Data Center (DMDC) acceptance of <CM> cardstock

This memorandum confirms that the <CM> Cardstock has been tested and accepted by Defense Manpower Data Center (DMDC) based on the following criteria:

Testing Criteria	Testing and Acceptance Date
Card Body Specification	DD/MM/YYYY
Visual Pre-Personalization	DD/MM/YYYY
Electrical Pre-Personalization (Test Keys/Cards)	DD/MM/YYYY (Key Ceremony)
	DD/MM/YYYY
Electrical Pre-Personalization (Production Keys/Cards)	DD/MM/YYYY (Key Ceremony)
	DD/MM/YYYY
Batch Delivery Descriptor & Site Shipping Delivery Descriptors	DD/MM/YYYY
Packaging material and labeling	DD/MM/YYYY

In accordance with the <DD/MM/YYYY> agreement <GSA Prime/CM> provided DMDC the following delivery schedule for the <Task Order cardstock quantity> cards associated with Task Order: <TO #>:

<u>Cardstock Ship/delivered to Vault</u>	<u>Quantity</u>	<u>Batch Order Number (Date DMDC Submitted to GSA Prime/CM)</u>
DD/MM/YYYY	TBD	BOD # (DD/MM/YYYY)
DD/MM/YYYY	TBD	BOD 7 (DD/MM/YYYY)
DD/MM/YYYY	TBD	BOD 8 (DD/MM/YYYY)
DD/MM/YYYY	TBD	BOD 9 (DD/MM/YYYY)

The Shipping Orders for each of these batches will be provided via e-mail to <CM> via a Shipping Order XML file no later than three days ahead of the expected shipping date.

All shipments are to be shipped in accordance with the requested delivery time line at the time the Shipping Order XML file is sent. We routinely request shipment via FedEx 3day economy service unless otherwise advised. The FedEx billing number to be used is Account # <TBD>.

Deborah S. Gallagher